Notts 1st line COPD Inhaled Treatment Summary [1]

Non inhaler interventions are the most effective. Offer Smoking cessation, Pulmonary rehab, Vaccinations, Support groups. Co-develop a self-management plan[2]

DPI Salbutamol 100 Easyhaler **2 doses prn**

MDI Salamol **2 puffs prn**

Persistent Breathlessness**.** Optimise inhaler technique**.** Non inhaler interventions offered. Use the Decision Aid to start or stop Inhaled Corticosteroid (ICS) as appropriate.

Decision Aid. Is Inhaled Corticosteroid (ICS) indicated? Consider ICS where positive outweigh negative. Ranked in clinical importance. Assess risk & benefits.		
Against ICS		**Favours ICS**
<0.1	Blood eosinophil count 10*9/L	>0.3
Absent	Previous secure diagnosis of asthma Substantial variation in FEV1 over time or on treatment (≥400ml) Substantial diurnal variation in PEFR (≥20%)	Present
Previous year <2	Exacerbations	Previous year ≥2
Previous History	Pneumonia hospitalisation	No Previous History
Previous History	Mycobacteria	No Previous History

ICS prescribing advice

- MDIs need a spacer – Aerochamber
- Advise to rinse mouth
- High dose ICS - no additional benefit & increased side effects.
- Only use inhaler strengths & doses stated in this guide
- Many high strength inhalers are NOT licensed in COPD.

ICS not indicated. Trial[2] **LABA/LAMA**

DPI Anoro Ellipta. **1 dose OD**. All eGFR

SMI Spiolto Respimat. **2 doses OD.** eGFR >49ml/min only

MDI Bevespi **2 doses BD**

ICS indicated **Trial**[2] **LABA/LAMA/ICS**.

DPI Trelegy Ellipta. **1 dose OD**. All eGFR

DPI Trimbow Nexthaler **2 doses BD** eGFR >29ml/min

MDITrimbow 87/5/9 **2 doses BD** eGFR > 29 ml/min

Day to day symptoms affecting QOL. Or 1 severe or 2 moderate exacerbations. Review inhaler technique. Non inhaler interventions optimised. **3 month trial of Triple Therapy. LABA/LAMA/ICS.**

ICS Indicated, LAMA not suitable**. Trial** [2] **LABA/ICS**. If asthma features – consider asthma diagnosis.

DPI Fobumix 320/9 **1 dose BD**.

MDI Luforbec 100/6 **2 doses BD**.

Limited by breathlessness / frequent exacerbations consider referral.

1. See Appendix for alternative inhalers, active ingredient and prescribing factors. 2. See page 2, heading 3 of Nottinghamshire COPD Guidelines (below)

Greener. Offer as first choice if clinically appropriate

Nottinghamshire COPD Guidelines

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Notts 1st line COPD Inhaled Treatment Summary

1. **COPD diagnosis**
2. **Exclude markers of asthma**
3. **Ensure highest value interventions are offered to all patients and revisit at every review**
4. **Review all patients at least annually**
5. **Exacerbations**
6. **Thick/sticky (tenacious) sputum causing cough**
7. **All breathless patients, before a new prescription**
8. **Check if the treatment is optimised by asking the patient**
9. **Optimising Inhaled Therapy**
10. **Acknowledgement**

Appendix. First-choice Licensed COPD Combination and Triple Inhalers

1. COPD diagnosis:

- Age > 35yrs and usually current smoker or ex-smoker with 1 or more symptoms:
- Exertional breathlessness, Chronic cough or wheeze, Regular sputum production.
- History of chest infections.
- Confirm diagnosis with spirometry FEV_1 < 80% predicted (although occasionally >80%) and post bronchodilator FEV_1/FVC ratio < 70% and symptoms typical of COPD.
- Measure BMI.
- Do CXR/FBC, ECG to assess for co-morbidities.
- Consider co-morbidities e.g. CVD/Mental health problems and optimise treatment.
- Observe for red flag symptoms such as haemoptysis.

2. Exclude markers of asthma:

- Variable chest tightness; wheeze; cough and breathlessness.
- Night-time waking.
- Significant diurnal variation of symptoms and peak expiratory flow.
- Symptoms related to work.
- Normalisation of spirometry after inhaled β2-agonist or a course of inhaled/oral corticosteroids.

3. Ensure highest value interventions are offered to all patients and revisit at every review:

- **Stop smoking:** only clinically effective intervention to slow disease progression. All patients should be provided with a brief intervention, advised to quit and sign posted to stop smoking services.
  Nottinghamshire County *https://yourhealthnotts.co.uk/professional-referral/*
  Nottingham City *https://thrivingnottingham.org.uk/professionals/*
- **Refer for pulmonary rehabilitation** - if COPD with MRC dyspnoea score 3-5, OR if functionally limited regardless of their MRC score. Consider re-referral if frequent exacerbations or more than a year since last course.*https://www.nottinghamshirehealthcare.nhs.uk/pulmonary-rehab-community-services*
- **Give vaccinations** - influenza annually / pneumococcal PPV23 (one off) as per *'Green Book'*
- **Provide Details of Self-Help Groups** *https://www.asthmaandlung.org.uk/groups-support*
- **Optimise treatment for comorbidities.**
- **Co-develop a** *'self-management* plan' in collaboration with the patient and their family members or carers as appropriate.
- **Consider medication:** Drug treatment should be guided by breathlessness and exercise limitation, exacerbation frequency, symptoms, disability and physiological complications that the patient experiences. At different times in the natural history of their disease different features may predominate and their management should change to reflect this. Agree with patient that new treatment is done as a trial and stop if no benefit. Discuss risks and benefits of starting treatment i.e. risks of ICS.
- **Review Regularly:** Stop new treatment if patient feels no improvement (symptomatic benefit is expected in 4 weeks, longer may be needed for reduction in exacerbations) For those patients with a '*self-management plan'* – consider exacerbation "Emergency Supply Pack": 30mg prednisolone OD for 5 days &/or doxycycline or amoxicillin for 5 days. For further details, including 2nd line antibiotics, see guidance on *'Emergency Supply Packs'* - note this may not be suitable for all patients.

4. Review all patients at least annually

- Check if treatment optimised at every opportunity, including review of inhaler technique and adherence before adding in therapy.
- Caution: avoid inadvertent duplication when using combination products. Ideally prescribe all regular treatment in a single inhaler: LABA/LAMA or LABA/LAMA/ ICS or LABA/ICS.
- Oral corticosteroids (prednisolone) - Maintenance use of oral corticosteroid therapy in COPD is not recommended and carries considerable risks (i.e. osteoporosis, muscle wasting etc.). -Do not start maintenance dose corticosteroids in primary care, refer for specialist review.
- Consider osteoporosis prophylaxis for patients having 3 courses of steroid within 12 months and think bone health in all patients.
- Macrolide antibiotics (e.g. azithromycin). Initiated and guided by specialist respiratory physician only, aimed to reduce frequency of exacerbations. Review for appropriateness if ongoing exacerbations. NB: ineffective if smoker. Be aware of risk of hearing loss, reversible if stopped early.

5. Exacerbations

Symptoms (persistent >48 hours) of an exacerbation include:
- Change in sputum colour/ increased quantity of sputum - start antibiotics
- Increased breathlessness - start oral steroids

If not effective re-assess with FBC and sputum culture before prescribing further antibiotics. Consider a chest X-ray and re-confirm diagnosis.
COPD Exacerbation Rescue Medication Pack - Guidance for Prescribers
COPD Self Management Plan

6. Thick/sticky (tenacious) sputum causing cough

- Consider physio referral for chest clearance techniques.
- **Oral Carbocisteine 750mg** TDS trial for up to 4 weeks. Stop if no improvement.
- If improvement reduce to 750mg BD. Titrate according to symptoms max TDS.
- Role for long term carbocisteine use is not clear. Should not be used routinely to prevent exacerbations in patients stable COPD.
- Carbocisteine is not appropriate for cough with COPD unless there is thick/sticky (tenacious) sputum.

7. All breathless patients, before a new prescription:

- Optimise current therapy before adding in new treatment.
- Check adherence with medicines (view issue history on GP system).
- Teach inhaler technique before prescribing and ask patients to demonstrate technique regularly.
- Provide and update plan for responding to symptoms.
- Use spacer to optimise inhaler technique if using MDI.

8. Check if the treatment is optimised by asking the patient:

- Has your treatment made a difference to you?
- Is your breathing easier?
- Can you do things now that you could not do at all before?
- Can you do the same things as before but are you less breathless now?
- Has your sleep improved?

9. Optimising Inhaled Therapy

- **Use 'Is Inhaled Corticosteroid (ICS) indicated?' Decision Aid** (Notts APC 1st line COPD Treatment Summary)
- For many COPD patients **optimised inhaled therapy** will be just **two inhalers**
- Relief inhaler (Salamol MDI or Salbutamol Easyhaler) + LABA/LAMA combination inhaler or LABA/LAMA/ICS triple inhaler (Appendix)

10. Acknowledgement

The **Decision Aid. Is Inhaled Corticosteroid (ICS) indicated?** is used with permission of:
John Hurst Professor of Respiratory Medicine, University College London. Price E, Ahmad S, Althobiani MA, et al. Development and evaluation of a tool to optimise inhaler selection prior to hospital discharge following an exacerbation of Chronic Obstructive Pulmonary Disease. ERJ Open Res 2024; in press (*https://doi.org/10.1183/23120541.00010-2024*).
https://openres.ersjournals.com/content/erjor/10/2/00010-2024/DC1/embed/inline-supplementary-material-1.pdf?download=true

Appendix: First-choice and Preferred Alternative Inhalers

	Inhaler Device	SABA	LABA/LAMA – prescribe by brand name	Triple Therapy – ICS (moderate dose) LABA/LAMA – prescribe by brand name	ICS (moderate dose) LABA – prescribe by brand name	Airflow Resistance
Dry Powder Inhaler (DPI) – Quick and Deep Inhalation	**ELLIPTA**		**Anoro** (umeclidinium/vilanterol) 55/22mcg **ONE dose OD** (£32.50) 	**Trelegy** (Fluticasone/Umeclidimium/Vilanterol) 92/55/22mcg **ONE dose OD** (£44.50) 	**Relvar**[1] (fluticasone furoate/vilanterol) 92/22mcg **ONE dose OD** (£22.00) 	Medium-Low
	EASYHALER	**Salbutamol** 100mcg **TWO doses PRN** (£3.31) 			**Fobumix** (budesonide/formoterol) 320/9mcg **ONE dose BD**[4] (£21.50) 	High
	GENUAIR		**Duaklir** (aclidinium/Formoterol) 340/12mcg **ONE dose BD** (£32.50) 			Medium
	NEXTHALER			**Trimbow**[2] (Beclometasone/ Glycopyrronium/Formoterol) 88/9/5mcg **TWO doses BD** (£44.50) 	**Fostair** [1] (beclomethasone/ formoterol) 100/6mcg **TWO doses BD** (£29.32) 	Medium-High
Slow and steady inhalation	**RESPIMAT SOFT MIST INHALER (SMI)**		**Spiolto**[3] (Tiotropium/ Olodaterol) 2.5/2.5mcg **TWO doses OD** (£32.50) 			Low
	METERED DOSE INHALER (MDI) (use with an Aerochamber)	**Salamol** 100mcg **TWO doses PRN** (£1.50) 	**Bevespi Aerosphere**[2] (Glycopyrronium/Formoterol) 7.2/5mcg **TWO doses BD** (£32.50) 	**Trimbow** [1,2] (Beclometasone/ Glycopyrronium/Formoterol) 87/9/5mcg **TWO doses BD** (£44.50)  **Trixeo Aerosphere**[2] (Budesonide/glycopyrronium/ formoterol) 160/7.2/5mcg **TWO doses BD** (£44.50) 	**Luforbec**[1] (Beclometasone/ Formoterol) 100/6mcg **TWO doses BD** (£13.98)  **Bibecfo**[1] (Beclometasone/ Formoterol) 100/6mcg **TWO doses BD** (£13.98) 	Low

[1]Higher strengths not licensed in COPD. [2] Not to be used in severe renal impairment (GFR <15 mL/min/1.73 m^2). [3] Only suitable if eGFR >49ml/min. [4] Higher dose not licensed in COPD

Indicates a greener choice preparation. Consider carbon footprint – note that DPIs and SMIs have a much lower carbon footprint than MDIs. Use low carbon option where drug choices/devices are equally appropriate, however, ensuring the patient is able to use the device effectively must always be the priority. For further information regarding environmental impact of respiratory disease management see PCRS Position Statement.

-Costs shown are for 30 days for regular treatment or per inhaler per PRN treatment. Use the most cost-effective inhaler device a patient can effectively use.

-Minimise the number of inhalers and number of different types of inhaler used by each patient as far as possible.

-Please see Right Breathe for inhaler technique demonstration videos.